

FOCUS 7 TASKS - Set 1

Each of the 30 topics is covered once within the 5 sheets

Sheet 1A

Inverse proportion	Q1
nth term of a quadratic sequence	Q2
Lines and midpoints	Q3
Factorising quadratics	Q4
Histograms	Q5
Probability	Q6

Sheet 1B

Direct proportion	Q1
Rearranging formulae	Q2
Completing the square	Q3
Calculations involving exact trig values	Q4
Area and perimeter of a sector	Q5
Area of a triangle (using sine)	Q6

Sheet 1C

Rationalising the denominator	Q1
Indices	Q2
Using the quadratic formula	Q3
Proof	Q4
Surface Area	Q5
Sine Rule	Q6

Sheet 1D

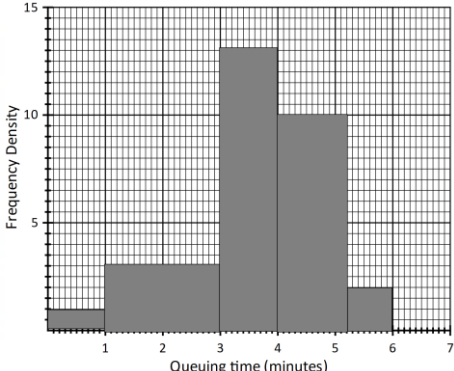
Ratios	Q1
Simultaneous equations	Q2
Composite functions	Q3
Similarity 2D and 3D	Q4
Vectors	Q5
Stratified sampling	Q6

Sheet 1E

Upper and lower bounds	Q1
Expanding 3 brackets	Q2
Rational expressions	Q3
Translating graphs	Q4
Volume	Q5
Cosine Rule	Q6

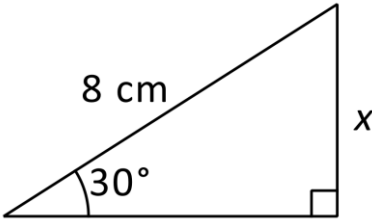
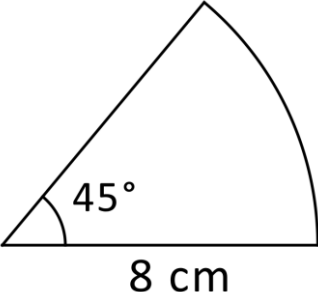
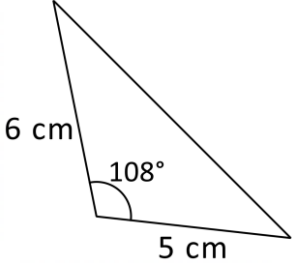
SKILLS CHECK

Write down the equation of the circle with radius 4 and centre (0,0)	Work out $1\frac{1}{2} + \frac{4}{5}$	Solve $4x - 3 = 2x + 1$	Expand and simplify $\sqrt{3}(4 + 2\sqrt{3})$
State the gradient and the y intercept of the line $2y + x = 8$	Pressure = 0.4 N/m ² Area = 0.1 m ² Force = ?	Increase £452 by 2.5%	Estimate $\frac{245 + 172}{35 \times 0.052}$

QUESTION 1 y is inversely proportional to the square root of x When x = 64 y = 4 Find the value of x when y = 8	QUESTION 2 Find the nth term of 3, 11, 25, 45, 71	QUESTION 3 Calculate the distance between the points (-2, 5) and (5, 9) correct to 1 decimal place Work out the coordinates of the midpoint
QUESTION 4 Factorise $6x^2 - 5x - 6$	QUESTION 5 Estimate the number of customers who queued for between 1 and 5 minutes. 	QUESTION 6 A bag contains 4 red and 5 blue counters. 2 counters are picked at random (without replacement). Calculate the probability that the counters are different colours.

SKILLS CHECK

Write down the equation of the circle with radius 9 and centre (0,0)	Work out $2\frac{2}{3} \times 1\frac{1}{2}$	Solve $\frac{x+3}{4} = \frac{x+4}{3}$	Expand and simplify $2\sqrt{2}(2+3\sqrt{2})$
State the gradient and the y intercept of the line $2y - 4x = 2$	Average speed = 54 km/h Time = 50 minutes Distance = ?	Decrease £48 by 15%	Estimate $\frac{3.72 \times 9.52}{0.52^2}$

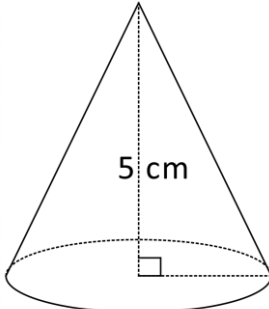
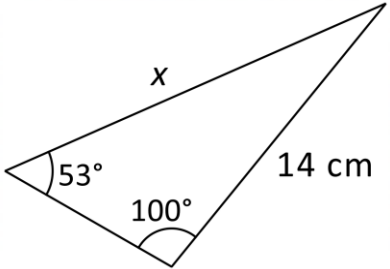
<p>QUESTION 1</p> <p>s is directly proportional to the cube t. When $t = 3$, $s = 108$ Find the value of s when $t = 5$</p>	<p>QUESTION 2</p> <p>Make x the subject of the formula $x + b = ax + c$</p>	<p>QUESTION 3</p> <p>Express $x^2 - 6x + 2$ in completed square form and write down the coordinates of the vertex of the graph $y = x^2 - 6x + 2$</p>
<p>QUESTION 4</p> <p>Without using a calculator work out the value of x</p> 	<p>QUESTION 5</p> <p>Calculate the perimeter of the sector. Leave your answer in terms of π</p> 	<p>QUESTION 6</p> <p>Calculate the area of the triangle (correct to 1 decimal place)</p> 

FOCUS 7 TASK 1C

NAME _____

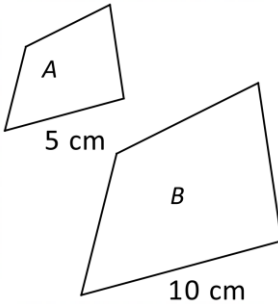
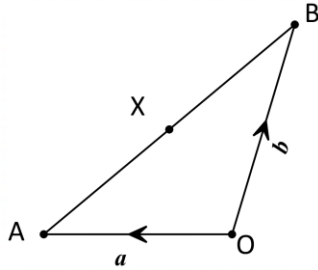
SKILLS CHECK

Write down the equation of the circle with radius 1 and centre (0,0)	Work out $\frac{1}{2} \div 1\frac{1}{5}$	Solve $2(5 - x) = 1 - x$	Expand and simplify $3\sqrt{3}(1 - 3\sqrt{3})$
State the gradient and the y intercept of the line $2x - y = 3$	Mass = 10g Density = 25g/cm^3 Volume = ?	Express 31 out of 40 as a percentage	Estimate $\sqrt[3]{9.54^2 + 4.51 \times 5.21}$

QUESTION 1 Rationalise the denominator $\frac{2\sqrt{3} + 6}{\sqrt{3}}$	QUESTION 2 Evaluate $16^{-\frac{1}{2}} \times 8^{\frac{5}{3}}$	QUESTION 3 Solve $4x^2 - 5x - 2 = 0$ using the quadratic formula (answer correct to 2 d.p.)
QUESTION 4 Show that $(n + 5)^2 - (n - 5)^2$ is an even number for all positive values of n.	QUESTION 5 Calculate the surface area of the cone correct to 1 d.p.  radius = 2 cm	QUESTION 6 Calculate x correct to 1 d.p. 

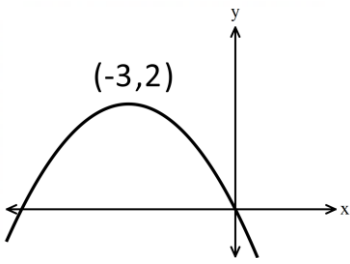
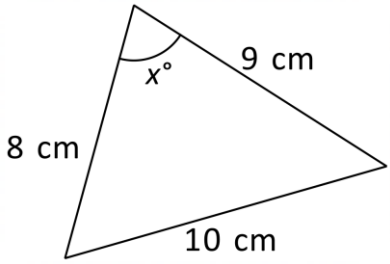
SKILLS CHECK

Write down the equation of the circle with radius 9 and centre (0,0)	Work out $2\frac{1}{8} - 1\frac{4}{5}$	Solve $\frac{5}{x+2} = 3$	Expand and simplify $\sqrt{3} + \sqrt{27} - 2\sqrt{3}$
State the gradient and the y intercept of the line $2x + 6y = 15$	Distance = 30 km Time = 36 minutes Speed = ? km per hour	Calculate 120% of £54	Estimate $4.8^2 + 9.09 \times \sqrt{3.5}$

<p>QUESTION 1</p> <p>The ratio of red to green beads in a bag is 2 : 5. The ratio of green to blue beads in the same bag is 3 : 5. If there are 75 blue beads in the bag, how many red beads are there?</p>	<p>QUESTION 2</p> <p>Solve simultaneously $y = 3x - 1$ $y = x^2 + 1$</p>	<p>QUESTION 3</p> <p>Given that $f(x) = 2x - 1$ and $g(x) = x^2$ solve $gf(x) = 1$</p>												
<p>QUESTION 4</p> <p>A and B are mathematically similar. If the area of A is 12 cm^2 calculate the area of B.</p> 	<p>QUESTION 5</p> <p>X is the midpoint of AB. Write an expression for OX in terms of vectors a and b</p> 	<p>QUESTION 6</p> <p>A stratified sample of 60 students is needed for a survey. How many students from Year 8 should be included in the survey?</p> <table border="1"> <thead> <tr> <th>Year</th> <th>Number of students</th> </tr> </thead> <tbody> <tr> <td>7</td> <td>125</td> </tr> <tr> <td>8</td> <td>110</td> </tr> <tr> <td>9</td> <td>90</td> </tr> <tr> <td>10</td> <td>135</td> </tr> <tr> <td>11</td> <td>140</td> </tr> </tbody> </table>	Year	Number of students	7	125	8	110	9	90	10	135	11	140
Year	Number of students													
7	125													
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SKILLS CHECK

Write down the equation of the circle with radius 15 and centre (0,0)	Work out $1\frac{1}{10} \div 1\frac{3}{10}$	Solve $\frac{x}{2} - 4 = x - 5$	Expand and simplify $\sqrt{2}(\sqrt{8} + 4\sqrt{2})$
State the gradient and the y intercept of the line $\frac{y}{2} + x = 1$	Force = 20 Area = 0.25 m ² Pressure = ?	Express 48 out of 800 as a percentage	Estimate $\frac{124 - 9.54}{0.29^2}$

QUESTION 1 A rectangular field has a length of 140 m, to the nearest 5 metres and a width of 120 m, to the nearest metre. Work out the lower bound for the perimeter of the field	QUESTION 2 Expand and simplify $(x + 3)(x - 2)(x - 1)$	QUESTION 3 Simplify $\frac{(x^2 - 1)(x - 3)}{(x^2 - 4x + 3)(x + 1)}$
QUESTION 4 The graph of $y = f(x)$ is shown with maximum point (-3,2) 	QUESTION 5 A sphere of radius r has the same volume as a cylinder with the same radius. Find an expression for the height of the cylinder.	QUESTION 6 Calculate the size of angle x (correct to 1 d.p.) 
Write down the coordinates of the maximum point of the curve with equation $y = f(x - 2)$		